

**A NEW SUBSPECIES OF *LUPERINA NICKERLII* FREYER, 1845
FROM SOUTH-EAST ENGLAND, WITH NOTES ON THE OTHER
SUBSPECIES FOUND IN BRITAIN, IRELAND AND MAINLAND
EUROPE.**

B. GOATER¹ AND B. SKINNER²

¹ 27 Hiltingbury Road, Chandlers Ford, Hants SO53 5SR.

² 5 Rawlins Close, South Croydon, Surrey CR2 8JS.

THE PRESENCE of a population of *Luperina nickerlii* on the salterns of south-east England has been known since the early 1980s, following the discovery of a series of six moths in the collection of the late R.P. Demuth, taken at Little Oakley, Essex, on 4th September 1973, amongst his *L. testacea* ([Denis & Schiffermüller] 1775). At the same time, it was learned that there were two specimens in the collection of A.J. Dewick, from Bradwell-on-Sea, Essex, taken 22nd August 1963 and 25th August 1964. Several entomologists, including the two authors, searched for the species in 1984-85 in a number of localities on the coasts of Essex and Kent (Skinner, 1985), and found it in large numbers, at light and resting by night on saltmarsh grasses, and the same form has subsequently been found to occur in south-east Suffolk, where it was taken in 1972 but not recognised at the time (J. Reid, pers. comm.).

This saltern form of *L. nickerlii* was clearly different from any other of the known British and Irish subspecies (Goater, 1976), and was referred to provisionally as the nominotypical form (Skinner, 1984). In late August 1994, one of the authors (BG) had the opportunity of seeing *L. nickerlii* near its type locality in Prague. The Prokop Valley lies on the southern outskirts of that city, surrounded by built-up areas, but remains fairly unspoilt. It is a dry calcareous valley, and the steep xerothermic, south-facing slope where the moth occurs extends for about 800 metres. On 26th August, BG and his wife were kindly conducted to the spot by Dr Ivo Novák, of the Research Institute of Crop Production, Ruzyně, Prague. Upwards of 30 individuals were seen: both sexes were found at rest on grasses after dark, some drying their wings, and males were fairly frequent at light. Nearly all were in fresh condition. It was evident at once that the English saltern race was quite different, both in appearance and in habitat, and it is described confidently as a new subspecies.

***Luperina nickerlii demuthi* subsp. nov. (Plate A, fig. 1)**

Wingspan 34-42mm. Thorax greyish fuscous, frons and abdomen similarly coloured. Forewing warm buffish; basal area marbled fuscous brown with sparse irroration of black scales; area between antemedian and postmedian lines similarly marbled but with heavier black irroration, some of which forms a somewhat indistinct transverse bar linking the two crosslines in the pre-dorsal area. Buff area between postmedian and subterminal lines weakly

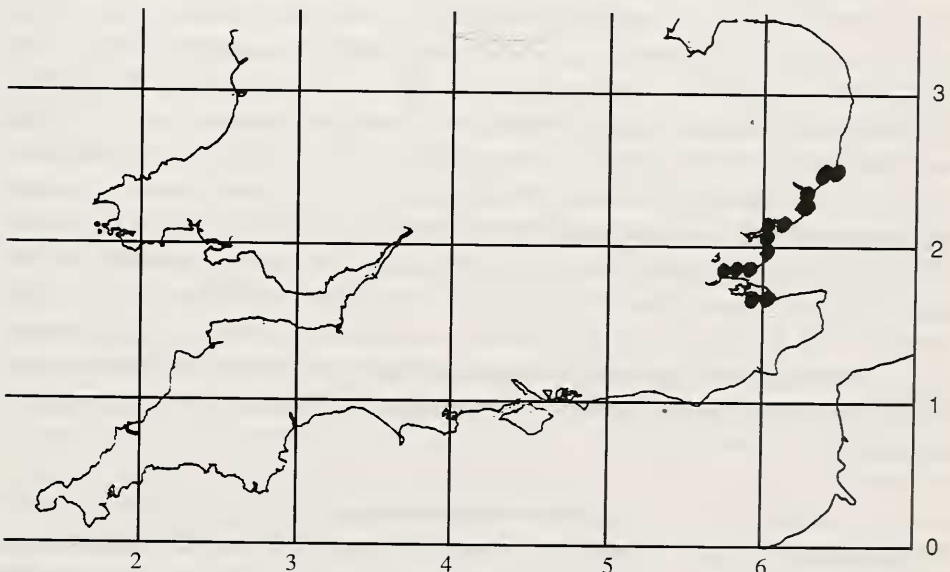
irrorate brown, and terminal region grey, irrorate brownish grey. Antemedian and postmedian lines buff, their facing margins edged with black. Subterminal line irregularly sinuate, conspicuously pale in contrast to adjacent areas. A conspicuous pale horizontal bar extends medially from base of wing to antemedian line, and there is a shorter black subdorsal bar between wing base and antemedian line. Orbicular stigma small, rounded, buff, narrowly edged black; reniform stigma conspicuously pale, whitish buff, the inner dorsal corner often with a distinct tail extending towards base of wing, the inner half of the stigma clouded buffish brown. Termen with a series of black interneural lunules. Fringe buff, with dark grey interneural chequers in outer half. Hindwing pure white with fine dark terminal line; fringe pure white. Underside of forewing pale buff, heavily shaded with grey, paler beyond narrow, buffish subterminal line. Reniform stigma a narrow vertical streak, surrounded by a pale zone. Termen with narrow brown interneural lunules. Fringe pale buff, with dark interneural chequers in outer half. Underside of hindwing off-white, with dusting of dark scales towards costa; discal dot formed by a concentration of dark scales. Fine dark terminal line which tends to break into separate dark lunules in anterior half. Fringe white.

Holotype male, Sheppey, Kent, 29.8.1984, B.F. Skinner in Natural History Museum, London (BMNH). **Allotype** female, Bradwell-on-Sea, Essex, 26.viii.1984, B. Goater, in BMNH. **Paratypes:** in BMNH, Little Oakley, Essex, 22.viii.1984, B. Goater x4 males; Little Oakley, 23.8.1984, B.F. Skinner x2 males, Canvey Island, Essex, 28.8.1984, B.F. Skinner x2 males, Bradwell, Essex, 26.viii.1984, B. Goater x2 males, x5 females, Sheppey, Kent, 29.8.1984, B.F. Skinner 1 female; in B. Goater collection, Little Oakley, Essex, 22.viii.84 x2 males and Bradwell-on-Sea, Essex, 26.viii.84 x2 females; in B. Skinner collection, Little Oakley, Essex, 22.viii.84 x2 males, x2 females, and Sheppey, Kent, 29.viii.84 x2 males, x3 females, Tillingham, Essex, 21.8.1987 x2 males, x2 females.

Unlike the nominotypical *L. nickerlii* and the other British subspecies, *L. nickerlii demuthi* is very variable. There is considerable variation in size, and some large females are unusually broad-winged. The palest specimens are nearly as pale as *L. nickerlii gueneei* Doubleday, but slightly more strongly patterned with the blackish subbasal bar remaining fairly distinct; the darkest ones are nearly uniform dark brownish fuscous, with slightly paler crosslines, and the most prominent feature is the pale reniform stigma and especially its whiter outer half. In some forms, the median area of the forewing is darker, recalling *L. nickerlii leechi* Goater, but we have seen no individual that remotely resembles fresh specimens of the Bohemian *L. nickerlii nickerlii* which is nearly black with a conspicuous whitish, dark-centred reniform stigma, but otherwise rather indistinctly patterned, with hindwings dusted with fuscous along the nervures and underside much darker. This race seems to be invariable.

The new subspecies occurs abundantly on the salterns around the Thames estuary between north Kent and south-east Suffolk, but has not been found anywhere else (Map 1). So far, the life history has not been worked out in full, but the larvae have been found in rootstocks of *Puccinellia maritima* (Hudson), common saltmarsh grass, and the pupae can be collected from tussocks of this grass (J. Platts, pers. comm.). The habitat is regularly inundated by the high tide, and all stages of the life cycle must be able to withstand this experience! At least one newly-emerged moth has been discovered, at night, on a grass stem the base of which was under water, indicating that eclosion must have been beneath the surface.

All the British and Irish subspecies of *L. nickerlii* are strictly coastal. *L. nickerlii gueneei* and *L. nickerlii leechi* occur on the sheltered sides of sand dunes amongst *Elytrigia juncea* (Linn.) (= *Elymus farctus* (Viv.) = *Agropyron junceforme* (A. & D. Löve)), and the Irish *L. nickerlii knilli* Boursin under grassy sea cliffs where it is probably associated with *Festuca rubra* Linn. On the Continent, *L. nickerlii* occurs mainly inland, not on coasts, but on dry, xerothermic and often calcareous hillsides; *Festuca ovina*, *Deschampsia caespitosa* and *Lolium perenne* are given as foodplants in the continental literature. The nominotypical *L. nickerlii nickerlii* Freyer was described from Prague and occurs also in Germany and Bulgaria (Ganev, 1982; Hacker 1989). There are several isolated populations in Germany, all differing slightly from one another, but all conforming to *L. n. nickerlii* (H. Hacker, pers. comm.). The figure in Culot (1912), Pl.25, fig. 5 is far too pale and evidently illustrated from a faded specimen, now in the Natural History Museum, London (BMNH), ex Oberthür coll. *L. nickerlii graslini* Oberthür is a widespread and variable race which extends from the Pyrenees across



Map 1. The known distribution of *Luperina nickerlii demuthi*.

southern France to the Alps. It was described from the Pyrénées Orientales (Oberthür, [1909]) and was later (Oberthür, 1929) referred to the specimen illustrated on Pl.25, fig. 9 in Culot (*loc. cit.*), now in BMNH *ex* Oberthür coll., which is atypically dark. The type series is in BMNH. This subspecies is very variable in size but often rather large; pale sandy or greyish brown with indistinct markings. All the specimens seen by BG from Spain, ranging from Provs. Huesca and Burgos in the north, through Teruel and Cuenca to Granada, appear to conform to subsp. *albarracina* Schwingenschuss (1962); they appear to be fairly constant in appearance with some local variation, small, brown and rather weakly marked except for the whitish, dark-centred reniform stigma; hindwings pure white. The type locality for *L. nickerlii tardenota* de Joannis (1925) is near Saclas, Seine-et-Oise (now Essonne), a calcareous hillside about 60km south of Paris. It is a small, neat, brightly coloured race, closest to our subsp. *gueneei* in appearance, but we are unable to discover how widespread it is. According to Heinicke & Naumann (1981), *L. nickerlii* also occurs in the southern Alps, central and southern Italy and Slovenia (Yugoslavia), but we have been unable to examine material from these regions.

It should be noted that all forms of *L. nickerlii* in collections gradually fade, and care should be exercised when making comparisons with museum material.

Draudt *in* Seitz (1934: 167) gives North Africa also for *L. nickerlii graslini*, but all those under that name in the BMNH, *ex* Rothschild collection, appear to be a different species, *L. dayensis* Oberthür, and certainly not *graslini*. It is not clear which species Draudt was referring to, but we have no evidence that *L. nickerlii* occurs anywhere in Africa.

The association of species on the edge of their range in Britain with coastal habitats, there sometimes developing distinctive races or subspecies, is seen in species other than *Luperina nickerlii*. For example, *Malacosoma castrensis* (Linnaeus) (Lasiocampidae), *Thetidia smaragdaria* (Fabricius) (Geometridae), *Eilema caniola* (Hübner) (Arctiidae) *Hadena caesia* ([Denis & Schiffermüller]), *H. confusa* (Hufnagel), *Leucochlaena odites* (Hübner) and *Cryphia muralis* (Forster) (Noctuidae) are all widespread in inland localities on the European mainland, yet chiefly or entirely coastal in Britain. It is clear that large areas of suitable habitat on the Continent permit free gene exchange throughout the population, whereas the isolation of coastal territories in Britain where the climate is tolerable to these species inhibits gene exchange and therefore favours subspeciation, especially when environmentally selective pressures operate on a fraction of the total species genome.

Acknowledgements

Colour plate A, fig. 1 depicting fresh specimens of *L. n. nickerlii* and a selection of specimens of *L. n. demuthi* subsp. nov. from the fine series in the Skinner collection was made by our colleague Mr David Wilson.

The authors are grateful to the authorities in Spain who permitted entomological studies in their areas, to Dr H. Hacker (Staffelstein, Germany) for much helpful advice on the continental distribution of *L. nickerlii*, to Messrs J. Platts and J. Reid for their comments on aspects of the distribution and biology of the new subspecies, and to the Trustees of the Natural History Museum (London) for permission to study the collections there, and especially to Messrs D.J. Carter and M.R. Honey for their willing assistance.

References

- Culot, J., 1909-1913. *Les Noctuelles et Géomètres d'Europe*, Première Partie, Noctuelles 1: 220pp. Geneva.
- Draudt in Seitz, A., 1931-1938. Die Gross-Schmetterlinge der Erde, 3. *Supplement*, vi + 333pp. Stuttgart.
- Freyer, C.F., 1845. *Neuere Beitr. Schmett.* 5: 140; pl. 466, fig. 4.
- Ganev, J., 1982. Systematic and Synonymic List of Bulgarian Noctuidae (Lepidoptera). *Phegea* 10(3): 145-160.
- Goater, B., 1976. A new subspecies of *Luperina nickerlii* (Freyer) (Lep.: Noctuidae) from Cornwall. *Entomologist's Gaz.* 27: 141-144, Pl. 8.
- Hacker, H., 1989. Die Noctuidae Griechenlands Mit einer Übersicht über die Fauna des Balkansraumes (Lepidoptera: Noctuidae). *Herbipoliana*, 2. 1-589, i-xii.
- Heinicke, W. & Naumann, C., 1981. Beiträge zur Insektenfauna der DDR: Lepidoptera - Noctuidae. *Beitr. Ent.* 31(2): 395-396.
- de Joannis, J., 1925. Une nouvelle espèce de Noctuelle du genre *Palluperina* Hampson (*Luperina*, *Apamea*, auct.) appartenant au groupe de *testacea* Schiff. *Ann. Soc. Ent. Fr.* 94: 331-38; pl. 1.
- Oberthür, Ch., [1909] 1908. Observations sur une nouvelle espèce française: *Luperina graslini* [Lép. Hét.]. *Bull. Soc. ent. Fr.* 1908: 322-323.
- , 1923. Catalogue des Lépidoptères des Pyrénées-Orientales. *Et. Lép. Comp.* 20: ix-xv + 1-159pp.
- Schwingschuss, L., 1962. *Z. wien. ent. Ges.* 47: 6.
- Skinner, B., 1984. *Colour Identification Guide to Moths of the British Isles*. Viking, x + 267pp. London.
- , 1985. *Luperina nickerlii* Freyer: Sandhill Rustic in Kent. *Entomologist's Rec. J. Var.*, 97: 28.

Coleophora deviella Zell (Lep.: Coleophoridae) – a correction

In the short note on this species by Norman Heal (*Ent. Rec. J. Var.*, 1995, 107: 43-44) the size of the fully grown case was quoted ambitiously as being between 9 and 19mm long. Whilst such a giant *deviella* might prove attractive to entomologists, the Editor regrets that the typical case size for this species is 9 – 10mm when fully grown. A further error crept into this note. The second sentence of the second paragraph should read “. . . as I had searched this same area for several consecutive seasons I can only surmise that at the time it was a recent arrival . . .” Our apologies to Mr Heal for these errors. Paul Sokoloff, Editor.

An unusual foodplant for *Hedya pruniana* Hb. (Lep.: Tortricidae)

Two tortricoid larvae were obtained when beating Yew (*Taxus baccata*) at Shoreham, Kent. One spun up without feeding and emerged as, unsurprisingly, *Ditula angustiorana* Haw. The second continued to feed on *Taxus*, eventually producing an adult *Hedya pruniana*. This appears to be a considerable departure from its normal pabulum of *Prunus* and other Rosaceous trees.

– I. FERGUSON, 31 Cathcart Drive, Orpington, Kent BR6 8BU.